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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,949	12/16/2003	Richard C. Chu	POU920030163US1	5528

7590 06/22/2005

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EXAMINER	
CHERVINSKY, BORIS LEO	

ART UNIT	PAPER NUMBER
2835	

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/736,949	CHU ET AL.	
	Examiner	Art Unit	
	Boris L. Chervinsky	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 5-8, 9-11, 15-17, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu.

Chu discloses a cooling fluid distribution assembly for a plurality of electronic modules arranged on a substrate assembly (col. 2, lines 61-66), comprising: a plurality of cold plates 13, each of said cold plates associated with one of the plurality of electronic modules, each of the cold plates having: a high thermal conductivity cold plate base 14; a cold plate cover (not numbered) having at least one cover fluid inlet and at least one cover fluid outlet 19, 21, the cover is sealably affixed to the base; and a fluid circulation structure for directing cooling fluid flow from the at least one cover fluid inlet to said at least one cover fluid outlet; a plurality of flexible fluid distribution conduits 18 in fluid flow communication with said cover fluid inlets and cover fluid outlets, the conduits being bonded to said cover fluid inlets and cover fluid outlets; and wherein the cold plates and conduits form an assembly for distributing a cooling fluid to the plurality of electronic modules, the assembly having at least one assembly fluid inlet and at least one assembly fluid outlet 23, 27, said assembly having connectors only at said at least one assembly fluid inlet and said at least one assembly fluid outlet; and having one

assembly fluid inlet and one assembly fluid outlet; a plurality of high thermal conductivity fins 39 is in thermal and mechanical contact with the base, the fins 39 forming a plurality of fluid flow channels; assembly forms a series fluid flow path among the cold plates, a parallel fluid flow path among the cold plates, and forms a combination serial and parallel fluid flow path among said cold plates (see Fig. 2). Chu discloses the claimed invention except cold plate cover being non-metallic. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have non-metallic cover, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

3. Claims 3, 4, 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu in view of Galyon et al.

Chu discloses the claimed invention as shown above except the input and outlet plenum in the cover and the channels forming a serpentine serial flow path. Galyon discloses the fluid circulation structure having the input and the outlet plenums (see Fig. 5) and serpentine fluid path (see Fig. 2, Fig. 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the fluid flow path as disclosed by Galyon in the device disclosed by Chu for efficient heat transfer.

4. Claims 19, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu in view of Bezama et al.

Chu discloses the claimed invention except permanent bonding that includes chemical bond. Bezama discloses the cooling device having the inlet tubing permanently bonded

to non-metallic body by any method, which may include chemical method (col. 3, lines 64-67, co. 4, lines 1-2) and it appears to be the method of bonding does not affect the structure of the device, therefor it would have been obvious to one having ordinary skill in the art at the time the invention was made to use permanent bonding as disclosed by Bezama in the device disclosed by Chu.

Response to Arguments

5. Applicant's arguments filed 04/13/05 have been fully considered but they are not persuasive. Applicant's arguments that the non-metallic cover and manner in which the flexible tubing is bonded to the cover presenting differences between the claimed invention and the prior art is not convincing since the non-metallic cover of the cold plate, beyond what it was discussed above on this matter, is disclosed in the prior art listed in the US PTO 892 Form and not applied at this time (see Bäumel et al.), but still reinforcing examiner's argument. The method of bonding of the flexible tubing can be either mechanical or chemical and it is also known and shown in the prior art (see Bezama et al.).

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Boris L. Chervinsky whose telephone number is 571-272-2039. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on 571-272-2800 ext. 35. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BORIS CHERVINSKY
PRIMARY EXAMINER

Boris L. Chervinsky
6/21/5